

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location in FY2002**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
1,1,1,2-Tetrafluoroethane (Refrigerant 134A)	1,600/500 lb	132N, 132S, 404, 511, 5207
1,1,1-Trichloroethane	220/70 gal	131, 132N, 151, 153, 165, 191, 243, 253, 281, 292, 298, 335, 391, 697
Acetic acid	500/100 gal	Located in more than 30 buildings.
Acetone	1,200/740 gal	Located in more than 70 buildings.
Acetonitrile	200/55 gal	132N, 132S, 151, 153, 154, 191, 197, 241, 253, 281, 298, 361, 363, 364, 432, 435, 691
Acetylene	83,000/60,000 ft <sup>3</sup>	Located in more than 50 buildings.
Acoustical Tile Adhesive	200/55 gal	261, 418, 433, 511, 512, 523, 525, 531
Actrel 4493L Cleaner	170/165 gal	697
Aero Melamine	3,500/1,100 lb	132N, 191, 231, 281, 363
Air, Compressed	85,000/68,000 ft <sup>3</sup>	131, 132N, 151, 241, 281, 324, 391, 432, 435, 518, 5475, 5477
Aluminum hydroxide	1,600/530 lb	
Aluminum oxide (Alumina)	2,500/840 lb	Located in more than 30 buildings.
Ammonia, anhydrous	Combined with Ammonium hydroxide	132N, 132S, 151, 153, 191, 197, 292, 362, 391, 5207
Ammonium hydroxide	3,600/200 gal	Located in more than 30 buildings.
Ammonium nitrate	2,000/500 lb	132N, 151, 191, 197, 231, 241, 243, 281, 298, 322, 361, 377, 378, 446
Antifreeze, coolant	260/80 gal	131, 132N, 132S, 141, 176, 191, 197, 198, 231, 241, 253, 298, 321C, 322, 323, 332, 361, 366, 377, 391, 418, 490, 511, 519, 697
AQUA POWER, Cleaner/Degreaser	150/55 gal	291, 418, 511, 519, 6203
Argon, compressed	25,000,000/ 160,000 ft <sup>3</sup>	Located in more than 60 buildings.
Asbestos-Free Roof Cement	165/55 gal	515
Asphalt Emulsion-seasonal product do not delete	1,100/55 gal	515
Barrett SN	300/230 gal	292, 321A, 322
Belsperse 161, Dispersant	6,500/3,000 lb	438
Beryllium	1,600/1,000 lb	131, 194
Beryllium oxide	500/350 lb	131, 321
Boron	2,600/500 lb	121, 132N, 132S, 151, 162, 182, 191, 231, 235, 697
Bright Plating solution	1,30/55 gal	322
Brulin MP 1793	200/100 gal	231, 321, 321C, 391
BSP Captor Solution	170/55 gal	291

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location in FY2002 (continued)**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
Bulls Eye 1-2-3 Primer/Sealer	750/55 gal	131, 335, 418, 6297
Butyl alcohol (n-Butanol)	510/55 gal	121, 132N, 151, 153, 154, 191, 231, 235, 241, 253, 281, 292, 298, 324, 328, 361, 362, 363, 364, 366, 391, 446, 697
Calcium chloride	3,200/500 lb	132N, 132S, 151, 154, 162, 191, 231, 235, 241, 243, 281, 292, 298, 322, 332, 361, 362, 363, 364, 366, 377, 378, 435, 436, 446, 612, 697
Calcium sulfate	1,300/500 lb	Located in more than 40 buildings.
Carbon, activated	800/500 lb	132N, 141, 151, 153, 154, 162, 190, 191, 235, 241, 261, 281, 292, 2925, 294, 298, 3203, 322, 361, 363, 381, 391, 478, 446, 597, 697
Carbon dioxide	176,000/124,000 ft <sup>3</sup>	Located in more than 30 buildings.
Carbon monoxide	4,000/1,300 ft <sup>3</sup>	132N, 132S, 141, 151, 162, 231, 235, 241, 243, 253, 281, 362, 363, 391, 435
Celite 535	2,000/950 lb	514
Cement, Kast-o-lite	1,300/500 lb	511
ChemTreat BL-1253	1,200 gal	291, 511
ChemTreat BL-1302	600 gal	291
ChemTreat BL-1543	110/55 gal	291
ChemTreat BL-1776	1,000/140 gal	291, 511
ChemTreat BL-1821	700/55 gal	291
ChemTreat CL-1467	700/55 gal	291
ChemTreat CL-2111	800/300 gal	291, 684
ChemTreat CT9001- Antifoulant	55/55 gal	291
Chlorine	750/500 ft <sup>3</sup>	151, 153, 166, 197, 298, 332, 391
Chloroform	110/55 gal	131, 132N, 151, 153, 154, 162, 191, 197, 241, 243, 253, 281, 292, 294, 298, 322, 332, 361, 362, 363, 365, 366, 391, 435, 446, 612
Chrome or Chromium	4,700/1,500 lb	121, 151, 152, 154, 176, 212, 231, 235, 241, 281, 332, 378, 391, 697
Chromium(III) chloride	12/1 lb	132N, 151, 162, 241, 281, 298, 3203
Citric acid, anhydrous	1,600/400 lb	132N, 151, 153, 191, 231, 235, 241, 255, 281, 292, 294, 298, 322, 361, 362, 363, 364, 366, 377, 378, 391, 392, 446, 697
Cobalt	16,500/14,000 lb	121, 132N, 151, 152, 162, 212, 231, 235, 241, 292, 361, 391, 697
Concresive Adhesive, Part A/B	330/55 gal	166, 332, 335, 418, 509, 511, 6203
Copper sulfate, crystals & solution	1,100/500 lb	132N, 191, 281, 322, 697
Cutting fluid, Aluminum A-9	100/90 gal	121, 191, 194, 212, 281, 321, 391, 423, 432, 511, 525
Cutting fluid, Cool Tool (I & II)	390/55 gal	131, 132N, 132S, 141, 153, 166, 173, 194, 231, 241, 243, 292, 298, 321, 331, 383, 391, 423, 443, 511

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location in FY2002 (continued)**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
Cyanuric acid	2,500/500 lb	132N, 151, 191, 231, 281, 291, 318
Dascool 2227	500/55 gal	321
DDO-19, Lubricating oil	500/55 gal	292, 321, 332, 512
Delvac Motor oil	300/55 gal	321, 519
DESMODUR	110/55 gal	191, 231, 5127
Detergent, ND 150	300/55 gal	423, 511, 515, 519, 531, 611
Diesel	30,000/10,000 gal	131, 141, 162, 194, 231, 241, 253, 291, 298, 343, 364, 381, 412, 431, 435, 452, 511, 519, 611, 622
Dimethyl sulfoxide	220/55 gal	132N, 132S, 151, 154, 162, 191, 231, 241, 253, 281, 298, 322, 332, 361, 362, 363, 364, 366, 377, 435, 446, 697
4,4'-Diphenylmethane diisocyanate	1,000/500 lb	231
DowTherm SR-1 30 Heat Transfer Fluid	110/55 gal	432
ELNIC 100 C-5	250/55 gal	322
ELNIC 100 RP-1	60/60 gal	322
ELNIC 100 RP-2	150/110 gal	322
Epolene Wax, Polyethylene, oxidized	110/55 gal	191, 231
Ethyl alcohol	2,000/1,500 gal	Located in more than 60 buildings.
Ethylene, compressed	5,700/1,900 ft <sup>3</sup>	132N, 134, 154, 241, 298, 394, 435, 446
Ethylene glycol	500/110 gal	Located in more than 30 buildings.
Ethyl silicate	150/55 gal	121, 132N, 1477, 151, 191, 243, 298, 391
Ferric chloride, Iron chloride(III)	1400/500 lb	132N, 132S, 151, 153, 191, 235, 241, 243, 281, 294, 298, 321, 361, 378, 435, 446
Ferric sulfate	3,500/700 lb	132N, 151, 191, 243, 322, 361, 442, 446, 514, 697
Fertilizer, Pro-Turf 25-3-10	11,000/5,500 gal	531
Freon 11 (Trichlorofluoromethane)	10,000/5,000 lb	281, 292, 404, 697
Freon 12 (Dichlorodifluoromethane)	6,300/4,000 lb	132N, 134, 190, 197, 241, 253, 292, 341, 394, 404, 511, 5207, 611
Freon 14 (Tetrafluoromethane)	2,500/500 ft <sup>3</sup>	132N, 132S, 134, 141, 153, 166, 190, 197, 298, 391, 394
Freon 22 (Chlorodifluoromethane)	9,000/5,000 lb	197, 253, 261, 361, 404, 511, 5207
Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	17,000/5,000 lb	Located in more than 30 buildings.
Gasoline	24,000/24,000 gal	611
Glass Cleaner, variety	2,300/200 gal	Located in more than 110 buildings.
Glycerine	110/55 gal	Located in more than 30 buildings.
Hafnium oxide	4,700/4,500 lb	131, 132N, 151, 162, 174, 231, 241, 281, 697
Halocarbon 23	400/200 ft <sup>3</sup>	231

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location in FY2002 (continued)**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
Halon 1301 (Bromotrifluoromethane)	2,000/1,600 lb	404
Helium	5,000,000/300,000 ft <sup>3</sup>	Located in more than 70 buildings.
Herbicide, Ronstar	2,000/700 lb	519, 520, 531
Herbicide, Roundup	220/40 gal	520, 531
Hexane	250/160 gal	131, 132N, 132S, 151, 154, 191, 231, 241, 253, 281, 292, 298, 327, 341, 361, 362, 363, 612, 691, 697
Hydrochloric acid	600/400 gal	Located in more than 40 buildings.
Hydrogen chloride (gas only)		132S, 134, 151, 162, 166, 191, 197, 212, 231, 235, 323, 332
Hydrofluoric acid	1,500/850 lb	132N, 132S, 151, 153, 154, 162, 166, 176, 197, 212, 231, 235, 241, 243, 253, 254, 2554, 281, 292, 294, 298, 322, 332, 378, 391
Hydrogen, compressed	1,500,000/50,000 ft <sup>3</sup>	Located in more than 30 buildings.
Hydrogen peroxide<52%	350/55 gal	Located in more than 40 buildings.
Insulating Oil, Inhibiting	1,800/1,200 gal	423, 431, 435
Isopropyl alcohol	650/550 gal	Located in more than 80 buildings.
Joint Compound, All purpose	45,000/12,100 lb	Located in 40 buildings.
Kerosene (Naphtha Petroleum)	300/55 gal	132N, 132S, 141, 151, 171, 194A, 197, 231, 235, 342, 251, 292, 321, 331, 332, 341, 376, 418, 432, 436, 612, 697
Kodak Fixer & Replenisher	650/250 gal	141, 151, 174, 191, 261, 327, 361
Krypton, compressed	1,600/1,100 ft <sup>3</sup>	121, 131, 132N, 132S, 141, 151, 162, 194, 197, 212, 235, 241, 298, 391
Lead Bricks or ingots	950,000 lb	Multiple
Lithium Grease	110/55 gal	131, 141, 194A, 235, 332, 391, 406, 411, 442, 511, 514, 519, 597, 611, 6203
Lithium Hydride	4,000/4,000 lb	131, 194, 231, 321, 612, 614, 625, 693
Lubricating Oil	500/300 gal	131, 151, 153, 162, 191, 231, 281, 321, 332, 341, 362, 435, 443, 511, 517, 519, 611, 697
Macro Brite L-7	220/110 gal	322
Magnesium chloride	6,000/500 lb	132N, 151, 162, 166, 212, 241, 243, 255, 281, 292, 298, 3203, 361, 363, 364, 366, 377, 435, 697
Manganese	3,500/3,000 lb	121, 132N, 151, 162, 212, 231, 235, 241, 243, 281, 294, 298
Mastic Patch adhesive, variety	400/55 gal	151, 332, 418, 511, 523, 6203, 6297
Metex L-5B	220/55 gal	322
Methane	100,000/30,000 ft <sup>3</sup>	Located in 40 buildings.
Methyl alcohol	1,800/500 gal	Located in more than 60 buildings.
Methylene chloride	2,000/55 gal	121, 132N, 132S, 151, 154, 162, 165, 166, 174, 1879, 191, 231, 235, 241, 253, 255, 281, 292, 298, 321, 331, 361, 362, 363, 377, 381, 3905, 391, 418, 513, 697

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location  
in FY2002 (continued)**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
Methyl ethyl ketone	400/55 gal	121, 1277, 132N, 151, 153, 162, 165, 191, 194, 197, 231, 235, 253, 281, 298, 327, 361, 3905, 391, 432, 442, 6297, 697
Mineral dust, Aquaset	10,000/4,500 lb	335, 419, 514
Mineral oil	2,000/55 gal	Located in more than 40 buildings.
Mineral spirits	400/55 gal	121, 154, 191, 235, 281, 332, 418, 523, 6297, 697
Modified Bitumen adhesive	350/200 gal	511, 515, 523
Neodymium oxide	7,000/1,350 lb	121, 132N, 151, 162, 191, 212, 241, 243, 378, 4999, 697
Neon, compressed	750,000/500,000 ft <sup>3</sup>	131, 132N, 134, 151, 162, 174, 191, 194, 197, 212, 231, 235, 298, 341, 381, 391, 394, 4299, 445
Nickel	1,500/500 lb	121, 132N, 132S, 151, 153, 162, 191, 231, 235, 239, 241, 243, 253, 2629, 281, 332, 378, 391, 697
Nickel chloride	80/70 gal	132N, 151, 197, 235, 281, 298, 361, 377, 378, 446, 697
Nickel sulfate	220/110 gal	151, 231, 235, 281, 322, 361, 697
Nitric acid	5,000/1,800 lb	Located in more than 40 buildings.
Nitric oxide	1,000/500 lb	132S, 134, 191, 197
Nitrogen, compressed (Liquified, gaseous)	38,000,000/ 18,000,000 ft <sup>3</sup>	Located in more than 80 buildings.
Nitrous oxide	4,000/1,200 ft <sup>3</sup>	132S, 141, 153, 166, 197, 253, 281, 292, 435
Oakite (Liqui-det)	80/55 gal	132N, 132S, 141, 151, 194, 196, 231, 235, 243, 251, 298, 321, 322, 329, 331, 332, 341, 361, 362, 363, 383, 423, 445, 511
Oil, Diala AX	2,200/1,050 gal	141, 1481, 191, 194, 2801, 321, 327, 341, 423, 515, 691
Oil, DTE-24	700/440 gal	131, 132N, 321, 341, 519
Oil, DTE-25	450/355 gal	321, 442
Oil DTE-26	2,000/400 gal	131, 190, 231, 321, 511, 518, 519
Oil, DTE, extra heavy	500/165 gal	321, 519, 697
Oil, DTE heavy	850/55 gal	321, 519
Oil, DTE Medium	220/55 gal	321, 445, 519
Oil, Spindle	700/355 gal	321, 423, 697
Oil, Tellus, variety	275/55 gal	132N, 261, 697
Oil, Vactra, variety	500/400 gal	131, 191, 298, 321, 321C
Oil, Vacuum Pump fluid, variety	1,500/55 gal	121, 132N, 151, 153, 176, 194, 235, 241, 253, 292, 298, 321, 362, 376, 377, 391, 438, 697
Oil, Waste	2,500/1,000 gal	611
Oxalic acid	700/500 lb	132N, 132S, 151, 231, 235, 254, 255, 281, 294, 322, 329, 332, 361, 378, 446, 697
Oxygen, compressed	870,000/75,000 ft <sup>3</sup>	Located in more than 60 buildings.
OzzyJuice SW3, Cleaner/Degreaser	300/55 gal	131, 132S, 241, 383, 511, 611
Paint (variety)	700,000/320,296 lb	Located in more than 80 buildings.
Perchloroethylene (Tetrachloroethylene)	250/55 gal	132N, 243, 281, 298, 322, 329, 341, 446, 697

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location in FY2002 (continued)**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
Phosphoric acid	3,600/1,000 lb	Located in more than 30 buildings.
Potassium chloride	3,500/1,200 lb	Located in more than 30 buildings.
Potassium hydroxide	15,000/400 lb	Located in more than 30 buildings.
Potassium Phosphate, Monobasic	10,000/2,000 lb	132N, 151, 162, 165, 166, 1678, 191, 253, 281, 292, 361, 363, 366, 435
Potassium silicate	1,100/500 lb	132N, 281, 298
Power Plus, Cleaner/Degreaser	110/55 gal	611
Printing Ink, variety	1,000/850 lb	261, 551W
Propane	45,000/1,000 gal	Located in more than 70 buildings.
Refrigerant, 123 Suva, (2,2-Dichloro-1,1,1-Trifluoroethane)	35,000/1,500 lb	404
Refrigerant 406A	720/500 lb	404, 511, 5207
Rough Rider Emulsion Degreaser	110/55 gal	364, 531
Rubinate fluid	110/55 gal	231
Sanding Sealer	200/90 gal	418, 511, 6297
sec-Butanol	130/122 gal	132N, 191, 253, 298, 361, 364, 377, 391, 3981, 432
Shur-Stik Wall Covering Adhesive	110/55 gal	418, 511, 6297
Silane, compressed	2,100/200 ft <sup>3</sup>	153, 166, 197, 391
Silicon carbide	3,200/500 lb	121, 131, 132N, 132S, 151, 194, 231, 235, 243, 298, 391
Silicone Transformer Fluid/Dow	700/165 gal	235, 253, 515, 697
Simple Green Degreaser	140/55 gal	131, 191, 243, 321A, 322, 324, 418, 442, 511, 519
Sodium bicarbonate	3,600/500 lb	Located in more than 30 buildings.
Sodium chloride	3,200/800 lb	Located in more than 40 buildings.
Sodium cyanide	250/100 lb	132N, 151, 191, 231, 3203, 322, 361, 363, 378, 697
Sodium hydroxide	25,500/14,000 lb	Located in more than 50 buildings.
Sodium hypochlorite (Bleach)	12,000/1,000 gal	Located in more than 40 buildings.
Sodium nitrate	1,500/350 lb	132N, 151, 162, 191, 231, 241, 243, 253, 281, 294, 322, 361, 377, 378, 435, 436, 446, 597, 612, 697
Solvent AZ-EBR	165/55 gal	298
Spill clean-up kit, Acids	1,600/500 lb	Located in more than 30 buildings.
Spill clean-up kit, Caustic	1,000/500 lb	132N, 132S, 151, 153, 154, 166, 1727, 197, 231, 235, 253, 254, 255, 261, 281, 292, 294, 298, 3203, 327, 331, 332, 341, 378, 514, 612, 697
Spill clean-up kit, Solvent	710/500 lb	Located in more than 30 buildings.
Strontium phosphate	1,400/350 lb	162

**TABLE B.4.15.1–3.—Livermore Site Hazardous Chemicals Quantities by Location in FY2002 (continued)**

<b>Material</b>	<b>Maximum/ Average Quantity<sup>a</sup></b>	<b>Location<sup>b</sup></b>
Sulfur hexafluoride, compressed	25,000/10,000 ft <sup>3</sup>	134, 141, 151, 153, 190, 191, 194, 197, 212, 231, 235, 253, 281, 381, 391, 424, 431, 515, 518, 6126
Sulfuric acid	11,000/4,500 lb	Located in more than 40 buildings.
Super Dropout	1,590/1,590 lb	442, 513
Suva MP39 (R401A)	800/600 lb	141, 404, 5207
Suva MP66 (R401B)	180/180 gal	511, 5207
Tantalum	75,000/20,000 lb	121, 132N, 132S, 151, 191, 212, 231, 241, 243, 281, 697
Tantalum oxide blend	17,000/8,500 lb	132N, 151, 152, 231
Thinner, Lacquer	3,000/500 gal	121, 132S, 141, 176, 231, 332, 365, 391, 418, 438, 511, 512, 5125, 517, 519, 523, 611, 6203, 6297
Toluene	480/300 gal	Located in more than 30 buildings.
TPX	800/800 lb	231
Transmission fluid, Dexron II (ATF)	220/55 gal	321, 519, 523
Trichloroethylene	350/165 gal	131, 132N, 132S, 141, 151, 153, 165, 191, 194, 197, 231, 235, 241, 243, 253, 281, 292, 298, 322, 332, 341, 391, 392, 445, 446, 691, 697
Trim Clear	110/55 gal	321A, 321C
Trim Sol, coolant	660/165 gal	121, 169C, 231, 241, 281, 298, 321, 331, 383, 391, 431, 432, 435, 511, 625, 691
Tungsten	2,500/500 lb	121, 132N, 132S, 151, 231, 235, 243, 281, 341
Ultra NZ, Floor Wax		531
Voranol	110/55 gal	231, 391
Wax, Floor	300/300 gal	512, 531, 6203
Xenon, compressed	2,000/500 ft <sup>3</sup>	121, 132N, 132S, 162, 166, 191, 194, 197, 198, 212, 231, 235, 241, 298, 361, 391, 435
ZEP Formula 50	110/55 gal	321

Source: LLNL 2002m.

Note: Some buildings are part of a complex and employ small ancillary storage facilities. The above list does not denote these facilities. Locations vary year to year. The listing of facilities is not intended to limit inventories. Physical space and administrative controls including safety documentation limit inventories. This table is provided to give the reader an understanding of the types of chemicals, general quantities and variety of locations.

<sup>a</sup> Maximum/Average Quantity: Maximum is defined as a maximum at one of the facilities in a given year. Average is defined as the average quantity found at multiple facilities.

<sup>b</sup> For chemicals located in 30 or more buildings, no location list is provided.

ft<sup>3</sup> = cubic feet; gal = gallons; lb = pounds.